

PATENT
Atty. Dkt. No. NVDAPP001024

REMARKS

This is intended as a full and complete response to the Office Action dated March 22, 2005, having a shortened statutory period for response set to expire on June 22, 2005. Claims 1-20 were examined. The Examiner objected to claims 6 and 18 and rejected claims 1-20. Please reconsider the claims pending in the application for reasons discussed below.

Interview with Examiner

Applicants' undersigned representative appreciates that the Examiner accommodated the request for an interview. On June 20, 2005, a telephonic interview was held between S. Winner (an agent of record), J. Sheridan (an attorney of record), and the Examiner, Antonio A. Caschera. Proposed amendments to the claims were discussed. The *Wood* reference of record was discussed.

The Examiner indicated that the proposed amendments overcame the *Wood* reference and that a new search is needed.

Drawing Objections

Applicant is amending paragraph [0085] to reference step 827 of Figure 8C. Step 1127 of Figure 11B is referenced in the first sentence of paragraph [00120].

Claim Objections

Claims 6 and 18 are objected to because of informalities. Applicant is amending claims 6 and 18 thereby bringing claims 6 and 18 into conformance with the Examiner's interpretation of those claims.

Claim Rejections – 35 U.S.C. § 102

Claims 1, is rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,204,856, "Attribute Interpolation in 3D Graphics," granted to *Wood et al.*

Page 6

364011_1

PATENT

Atty. Dkt. No. NVDAP001024

In response, Applicant is amending claim 1, and, as the rejection might be applied to the amended claim, respectfully traverses.

Applicant is amending claim 1 to more particularly and distinctly claim the subject matter that the Applicant regards as the invention. Claim 1 recites the limitation of storing a portion of a position associated with a fragment in an entry that is specified by a tile number. As described in the specification (see paragraph [0032]), a fragment is produced as the intersection between a graphics primitive, such as a triangle, and a pixel during rasterization. A fragment may cover an entire pixel, but is not larger than a pixel. Claim 1 as amended recites that a portion of a position of the fragment is stored in an entry specified by the tile number of the tile that includes the pixel. As described in the specification (see paragraph [0078] the tile number is unique to a tile and may be the tile origin (x,y position) or an entry address. *Wood* does not teach this limitation.

Rather, *Wood* teaches storing a face identifier in an entry of a tile fragment stack (col. 5 lines 1-14). The tile fragment stack is associated with a particular tile and includes face identifiers of triangles that impact the particular tile. Unlike the tile number in claim 1, the face identifier described in *Wood* is an integer value allocated to a triangle. A face identifier is unique to a triangle. Therefore, the face identifier of *Wood* is not functionally equivalent to a tile number. Nowhere does *Wood* disclose storing a portion of a position of a fragment produced by rasterizing a triangle. *Wood* therefore fails to teach each and every one of the recited limitations of amended claim 1, and this failure precludes *Wood* from anticipating amended claim 1. For these reasons, Applicant submits that amended claim 1 is in condition for allowance and respectfully requests withdrawal of the 35 U.S.C. § 102(e) rejection of that claim.

Claim Rejections – 35 U.S.C. § 103

Claims 2, 5, and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Wood* in view of U.S. Publication 2003/0164830, "Yield Enhancement of Complex Chips," by *Kent*.

Claims 2 and 5, and amended claim 6 depend from allowable amended claim 1. As explained with reference to claim 1, *Wood* fails to teach each and every one of the recited limitations of amended claim 1. Nowhere does *Wood* suggest storing a portion

PATENT

Atty. Dkt. No. NVDA/P001024

of a position of a fragment produced by rasterizing a triangle, and therefore, *Wood* cannot be used to render claims 2 and 5 and amended claim 6 obvious.

Furthermore, neither *Wood* nor *Kent* demonstrate a motivation to combine storing triangle face identifiers as taught in *Wood* with tile masking techniques as taught in *Kent* and these references cannot be used to render claims 2, 5, and 6 obvious. As known to those skilled in the art of 3D graphics processing, sorting triangles based on which tile(s) a triangle impacts is used in region/tile/chunking architectures. As described in col. 1 lines 36-39 of *Wood*, "tile-based rendering assembles all triangles impacting a given region of the screen (a tile) and renders these, processing tiles sequentially." Therefore, the tile-based rendering architecture described in *Wood* is a region/tile/chunking architecture. In contrast, the invention taught in *Kent* is not a region/tile/chunking architecture and is therefore not compatible with the invention described in *Wood*. As stated in paragraph [0049] of *Kent*, "This should not be confused with region/tile/chunking architectures which require the input primitives to be sorted into tiles and then processed collectively." There is no motivation to combine the teachings of *Wood* with the teachings of *Kent* and these references, either alone or in combination, cannot be used to render claims 2, 5, and 6 obvious. Applicant therefore respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejection of claims 2, 5, and 6 and allowance of those claims.

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Wood* in view of U.S. Patent No. 6,704,024, "Visual Content Browsing Using Rasterized Representations," granted to *Robotham et al.*.

Claim 4 depends from allowable amended claim 1. As explained with reference to claim 1, *Wood* fails to teach each and every one of the recited limitations of amended claim 1. Nowhere does *Wood* suggest storing a portion of a position of a fragment. *Robotham* also fails to teach or suggest storing a portion of a position of a fragment. Since neither *Wood* nor *Robotham* teaches or suggests storing a portion of a position of a fragment, these references, either alone or in combination, cannot be used to render claim 4 obvious. Applicant therefore respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejection of claim 4 and allowance of that claim.

PATENT

Atty. Dkt. No. NVDA/P001024

Claims 3, 7, 8, 10-15, amended claim 18, and claims 19-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Wood* in view of *Kent* and further in view of U.S. Publication 2004/0212619, "Image Rendering Device and Image Rendering Method," by *Saito et al.*

Claims 3, 7, 8, and amended claim 10 depend from allowable amended claim 1. As explained with reference to claim 1, *Wood* fails to teach each and every one of the recited limitations of amended claim 1. Nowhere does *Wood* suggest storing a portion of a position of a fragment, and therefore, *Wood* cannot be used to render claims 3, 7, 8, and 10 obvious. As explained with reference to claims 2 and 5, and amended claim 6, there is no motivation to combine the teachings of *Wood* with the teachings of *Kent* and these references, either alone or in combination, cannot be used to render claims 3, 7, 8, and 10 obvious. Nowhere does *Saito* teach or suggest storing a portion of a position of a fragment, and therefore, *Saito* cannot be used to render claims 3, 7, 8, and 10 obvious. Additionally, Applicant is amending claim 10 to more particularly and distinctly claim the subject matter that the Applicant regards as the invention. Claim 10 recites the limitation of delaying processing of a fragment corresponding to a position conflict. Applicant therefore respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejection of claims 3, 7, 8, and amended claim 10 and allowance of those claims.

Claim 9 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Wood*, *Kent*, *Saito*, and in further view of U.S. Publication No. 2003/0115267, "System and Method For User Enrollment in an E-Community," by *Hinton et al.*

Claim 9 depends from allowable claim 8 and is allowable for at least the same reasons as claim 8. *Robotham* also fails to teach or suggest storing a portion of a position of a fragment. Since neither *Wood* *Kent*, *Saito*, nor *Robotham* teaches or suggests storing a portion of a position of a fragment, these references, either alone or in combination, cannot be used to render claim 9 obvious. Applicant therefore respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejection of claim 9 and allowance of that claim.

Applicant is amending claim 11 to more particularly and distinctly claim the subject matter that the Applicant regards as the invention, and, as the rejection might be applied to the amended claim, respectfully traverses. Claim 11 recites the limitation of

PATENT

Atty. Dkt. No. NVDA/P001024

storing tile origins. *Wood* does not teach this limitation. As explained with reference to claim 1, the face identifier of *Wood* is not functionally equivalent to a tile origin. Additionally, the "magic point" described in *Wood* (see col. 4 lines 56-60) is not functionally equivalent to a tile origin. Like the face identifier, the "magic point" is specific to a particular triangle. Furthermore, *Wood* does not teach or suggest storing a "magic point." Nowhere does *Wood* suggest storing a tile origin, and therefore, *Wood* cannot be used to render claim 11 obvious.

Amended claim 11 recites the limitation of a control unit that outputs a stall signal indicating whether or not the conflict detection unit will accept new data. As described in the specification (see paragraphs [0082] and [0084] and paragraphs [0091] and [0093]), the control unit asserts the stall signal. The stall signal is used to delay processing of a fragment for which a position conflict exists without requiring a flush of the shading pipeline. Reducing the number of flushes improves the processing throughput of the shading pipeline. *Wood* does not teach this limitation.

Nowhere does *Wood* teach or suggest generating a signal indicating whether or not new data will be accepted. *Wood* fails to teach or suggest each and every one of the recited limitations of amended claim 11, and therefore, *Wood* cannot be used to render amended claim 11 obvious.

Additionally, as explained with reference to claims 2 and 5, and amended claim 6, there is no motivation to combine the teachings of *Wood* with the teachings of *Kent* and these references, either alone or in combination, cannot be used to render amended claim 11 obvious. Nowhere does *Saito* or *Kent* teach or suggest storing tile origins, and therefore, neither *Saito* nor *Kent* can be used to render amended claim 11 obvious. Applicant therefore respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejection of amended claim 11 and allowance of that claim.

Claims 12-15, amended claims 18 and 19, and claim 20 depend from allowable amended claim 11 and are allowable for at least the same reasons as amended claim 11. Additionally, Applicant is amending claim 19 to more particularly and distinctly claim the subject matter that the Applicant regards as the invention. As amended, claim 19 recites the limitation of fragments produced by rasterizing of graphics primitives. Applicant therefore respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejection

PATENT

Atty. Dkt No. NVD/A/P001024

of claims 12-15, amended claims 18 and 19, and claim 20 and allowance of those claims.

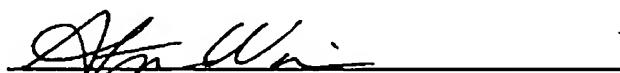
Claims 16 and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Wood*, *Kent*, *Saito*, and further in view of *Robotham*. Claims 16 and 17 depend from allowable amended claim 11. As explained with reference to claim 11, *Wood*, *Kent*, and *Saito*, either alone or in combination, cannot be used to render claims 16 and 17 obvious. Nowhere does *Robotham* teach or suggest storing tile origins, and therefore, *Robotham* cannot be used to render claims 16 and 17 obvious. Applicant therefore respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejection of claims 16 and 17 and allowance of those claims.

Conclusion

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

Having addressed all issues set out in the office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully requests that the claims be allowed. Applicant reserves the right to subsequently take up prosecution of the claims as originally filed in this application in a continuation, a continuation-in-part and/or a divisional application.

Respectfully submitted,



Stephanie Winner
Registration No. 52,371
MOSER, PATTERSON & SHERIDAN, L.L.P.
595 Shrewsbury Ave. Suite 100
Shrewsbury, NJ 07702
Telephone: (650) 330-2310
Facsimile: (650) 330-2314
Agent for Applicant(s)

Page 11

364011_1